

CLAIMS

1. A method for producing an embossed sheet material comprising at least two layers of web material (V1, V2; V1, V3) joined together, characterized by the stages of:
 - 5 - embossing a first layer of web material (V1), previously furnished with a background pattern made up of a first set of protuberances (P2; P102; P1), so as to generate on it a second set of protuberances (P4; P104; P1), which are partially superimposed on the first set of protuberances making up the background pattern, and defining an ornamental motif made up of a pattern of major dimensions and minor density with respect to the background pattern;
 - to couple to said first layer of web material (V1) a second layer of web material (V2; V3).
2. Method as claimed in claim 1, characterized in by coupling said first layer and said second layer by means of a glue (C).
- 15 3. Method as claimed in claim 1 or 2, characterized in that said background pattern on the first layer of web material (V1) is obtained by means of embossing in line and before the embossing of the first layer (V1) for generating of said ornamental motif.
- 20 4. Method as claimed in claim 1 or 3, characterized by embossing said second layer of web material (V3) for generating thereon a third set of protuberances (P6; P106) having major dimensions and minor density with respect to the protuberances (P2; P204) of the first set.
- 25 5. Method as claimed in claim 4, characterized in that the protuberances of the second and third sets (P4, P6; P104, P106) have the same density and are inserted inside one another.
6. Method as claimed in claim 3, characterized in that it involves generating said first set of protuberances (P2; P102) and said second set of protuberances (P4; P104) on the first layer (V1) by running said first layer (V1) around a first pressure roller (5; 105) interacting with a first and a second embossing cylinders (1, 3; 101; 103) that have respectively first and second sets of points (1P, 3P; 101P, 103P), the second set of points (3P; 103P) being of

larger dimensions and lower density than the first set of points (1P; 101P).

7. Method as claimed in claim 6, characterized in that it involves joining together said first and said second layers (V1, V2) between the first pressure roller (5; 105) and a second embossing cylinder (3; 103) that interacts
5 with the first pressure roller (5; 105).

8. Method as claimed in claim 6 or 7, characterized in that said second embossing cylinder (3) interacts with a second pressure roller (7) to generate said third set of protuberances (P6) on said second layer (V2).

9. Method as claimed in one or more of claims 4 to 8, characterized in
10 that it involves applying an adhesive to at least some of the protuberances of said third set (P6) on said second layer (V2), and joining said two layers (V1, V2) by gluing them together.

10. Method as claimed in one or more of claims 4 to 9, characterized in that it involves embossing said second layer (V2) with a greater embossed
15 depth than the embossed depth of the second set of protuberances (P4) on the first layer (V1).

11. Method as claimed in claim 6, characterized in that it involves running said second layer (V2) around said first pressure roller (105), downstream of the area in which the first layer (V1) is embossed between said first
20 embossing cylinder (101) and said first pressure roller (105), and embossing said second layer (V2) on said first layer (V1) between the first pressure roller (105) and the second embossing cylinder (103).

12. Method as claimed in claim 11, characterized in that it involves: arranging a second pressure roller (107) around the second embossing cylinder
25 (103); and feeding a third layer of web material (V3) around said second pressure roller (107), between the latter and the second embossing cylinder (103), so as to generate a fourth set of protuberances (P108) on it; the first, second and third layers (V1, V2, V3) being laminated together between the second embossing cylinder (103) and the second pressure roller (107).

30 13. Method as claimed in claim 12, characterized in that it involves applying an adhesive (C) to at least some of the protuberances of said second set of protuberances (P104) and gluing together the three layers (V1, V2, V3)

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by causing the adhesive (C) to migrate through the first layer (V1) toward the second layer (V2).

14. Method as claimed in claim 4 or 5, characterized in that it involves generating said first set of protuberances (P2) by means of a first embossing

5 cylinder (1') with its own pressure roller (5'), and generating said second set of protuberances (P4) with another pressure roller (5) and a second embossing cylinder (3), with which latter a third pressure roller (7) interacts, the second embossing cylinder and the third pressure roller generating said third set of protuberances (P6) on said second layer (V2).

10 15. Method as claimed in claim 1 or 2, characterized in that said second layer of web material (V3) is furnished with a background pattern made up of a set of protuberances (P3).

16. Method as claimed in claim 14, characterized in that said background pattern of the second layer of web material (V3) is obtained by means 15 of embossing in line and before the coupling with the first layer of web material (V1).

17. Method as claimed in claim 15 or 16, characterized in that the protuberances (P1, P3) of said background pattern on the first and on the second layer and the protuberances (P5) of said ornamental motif on the first layer 20 project on the same face of the corresponding layer (V1, V3).

18. Method as claimed in claim 17, characterized in that the protuberances forming said ornamental motif have a greater height than that of the protuberances forming said background pattern, and in that said two layers are joined together by gluing at the positions of the protuberances (P5) of said 25 ornamental motif.

19. Method as claimed in claim 15, 16, 17 or 18, characterized in that said first and said second layers are separately embossed by means of corresponding first embossing units (301-303, 305-307; 201-203, 205-207), which generate the set of protuberances forming the background pattern on the two 30 layers (V1, V3), and are then run around an embossing cylinder (209; 309) provided with points (209P; 309P) for generating said ornamental motif on the first (V1) of said layers and for joining the layers.

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20. Method as claimed in claim 19, characterized in that one (V1) of said layers is embossed according to said background pattern between a pair of rollers (401, 403) of a first embossing unit and is subsequently embossed on an embossing cylinder (409) provided with points (409P) for generating said ornamental motif; in that the second layer (V3) is embossed between a further embossing cylinder (421) and a pressure roller (423), said further embossing cylinder being provided with points (421P) for generating said background pattern on the second layer (V3); and in that the two layers are joined between said two embossing cylinders (409, 421).

5 10 21. Method as claimed in one or more of claims 15 to 20, characterized in that said layers (V1, V3) are joined together by means of a colored adhesive.

15 22. An embossed laminar product comprising at least two layers of web material (V1, V2; V1, V3) wherein a first (V1) of said layers of web material has a background pattern made up of a first set of protuberances (P2; P102; P1), on which is superimposed an ornamental motif made up of a second set of protuberances (P4; P104; P5) of major dimensions and minor density with respect to the first set of protuberances, and in which to said first layer (V1) is coupled a second layer of web material (V2; V3).

20 23. Sheet product as claimed in claim 22, characterized in fact that said two layers are coupled together by means of gluing.

24. Sheet product as claimed in claim 23, characterized in that said two layers (V1, V2) are glued together by a colored adhesive.

25 25. Sheet product as claimed in claim 22, 23 or 24, characterized in that said second layer of web material (V2; V3) is embossed.

26. Sheet product as claimed in claim 24, characterized in that said second layer (V2) has an embossing comprising a third set of protuberances (P6; P106) of major dimensions and minor density with respect to the protuberances of said first set of protuberances (P1; P102) defining the background pattern on the first layer (V1).

30 27. Sheet product as claimed in claim 26, characterized in that the protuberances of said first set (P2; P102) are squeezed at the positions of the

protuberances of said second set of protuberances (P4; P104) of the first layer (V1).

28. Sheet product as claimed in claim 26 or 27, characterized in that said protuberances of the third set of protuberances (P6; P106) on the second layer (V2) are inserted inside the protuberances of said second set of protuberances (P4; P104) on said first layer (V1).

5 29. Sheet product as claimed in one or more of claims 26 to 28, characterized in that the protuberances of the third set of protuberances (P6; P106) on the second layer (V2) are higher than the protuberances of the second set of protuberances (P4; P104) on the first layer (V1).

10 30. Sheet product as claimed in one or more of claims 26 to 29, characterized in that said two layers are glued together on at least some of the protuberances of the third set of protuberances (P6; P106) on said second layer (V2).

15 31. Sheet product as claimed in one or more of claims 26 to 29, characterized in that it comprises a third layer (V3) joined to the first and second layers (V1, V2) at the protuberances of the second set of protuberances (P104) of said first layer (V1).

20 32. Sheet product as claimed in claim 31, characterized in that said third layer (V3) is embossed with a fourth set of protuberances (P108) arranged with the same pattern as the protuberances of the third set of protuberances (P106) on said second layer (V2), but not so high.

25 33. Sheet product as claimed in claim 31 or 32, characterized in that said third layer (V3) is glued to said first layer (V1) on at least some of the protuberances of said second set of protuberances (P104).

34. Sheet product (N) as claimed in claim 25, characterized in that said second layer (V3) comprises at least one background embossing consisting of a plurality of third protuberances (P3) having minor dimensions and major density with respect to said ornamental motif.

30 35. Sheet product as claimed in claim 34, characterized in that the protuberances of each layer project from the surface of the corresponding layer facing the interior of the sheet material.

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36. Sheet product as claimed in claim 34 or 35, characterized in that said second layer (V3) is joined by gluing to said first layer (V1) at the positions of the protuberances (P5) of said second set of protuberances forming the ornamental motif, said two layers being substantially free of adhesive in the areas surrounding the protuberances (P5) of said second set.

5 37. Sheet product as claimed in one or more of claims 34 to 36, characterized in that said third protuberances (P3) in said second layer (V3) are squeezed at the positions of the second protuberances (P5) of the first layer, forming said ornamental motif.

10 38. Sheet product as claimed in claim 37, characterized in that, where it meets the protuberances (P5) forming said ornamental motif in the first layer (V1), said second layer (V3) has protuberances on the surface opposite that facing the first layer (V1).

15 39. A device for the production of a web material (N) made up of at least two layers (V1, V2; V1, V3), comprising:

- a first embossing unit for generating on at least a first (V1) of said layers a background pattern made up of a first set of protuberances (P2; P102; P1);
- a second embossing unit for generating on said first layer (V1) an ornamental motif made up of a second set of protuberances (P4; P104; P1) of major dimensions and minor density with respect to the protuberances (P2; P102; P1) of said first set and partially superimposed on said background pattern;
- means for coupling a second layer to said first layer.

25 40. Device as claimed in claim 39, characterized by comprising an adhesive applicator for applying an adhesive at least on the protuberances (P4; P104; P5) of said second set.

41. Device as claimed in claim 39 or 40, characterized by a first pressure roller (5; 105) which is common to said first and said second embossing 30 unit interacting with a first and a second embossing cylinders (1, 3; 101; 103) carrying respective points (1P, 3P; 101P, 103P) on their cylindrical surfaces for generating on the first layer (V1) said first and said second sets of protu-

berances.

42. Device as claimed in claim 41, characterized in that the points (1P; 101P) of the first embossing cylinder (1; 101) have greater density and smaller dimensions than the points (3P; 103P) of the second embossing cylinder (3; 103).

5 43. Device as claimed in claim 42, characterized in that it comprises a second pressure roller (7; 107) interacting with the second embossing cylinder (3; 103).

10 44. Device as claimed in claim 39 or 40, characterized in that said first embossing unit comprises a first pressure roller (5') interacting with a first embossing cylinder (1') and that said second embossing unit comprises a second embossing cylinder (3) interacting with a second and a third pressure rollers (5, 7).

15 45. Device as claimed in claim 39, characterized in that it comprises:
- a further embossing unit (305, 307; 421, 423; 205, 207), for a second layer (V3), said first embossing unit and said further embossing unit generating in said first and said second layers a background pattern, consisting of a first set of protuberances (P1; P3).

20 46. Device as claimed in claim 45, characterized in that said means for coupling together said two layers join the two layers at the positions of the protuberances of the second set of protuberances which form said ornamental motif.

25 47. Device as claimed in claim 45 or 46, characterized in that said first embossing unit and said further embossing unit for generating said background pattern on the first and on the second layer (V1, V3) each comprise a pair of embossing rollers, one of which (1, 5; 201, 205) is provided with points (1P, 5P; 201P, 205P) while the other (3, 7; 203, 207) is provided with a yielding surface.

30 48. Device as claimed in claim 45 or 46, characterized in that said means for coupling said two layers consist of an embossing cylinder (9; 209) of the second embossing unit and a marrying roller (13; 213), said embossing cylinder (9; 209) being provided with points (9P; 209P) for generating the sec-

ond set of protuberances forming said ornamental motif.

49. Device as claimed in claim 48, characterized in that said marrying roller (13) has a substantially rigid cylindrical surface.

50. Device as claimed in claim 45 or 46, characterized in that the first embossing unit for the first layer (V1) comprises a pair of embossing rollers (401, 403); in that the second embossing unit comprises an embossing cylinder (409), provided with points (409P) for generating the second set of protuberances (P5) forming said ornamental motif, and interacting with a pressure roller (411); and in that the further embossing unit (421, 423) for the second 10 layer (V3) comprises a further embossing cylinder (421) provided with points (121P) and interacting with a pressure roller (423) having a yielding surface.

51. Device as claimed in claim 50, characterized in that said means for coupling said layers consist of said two embossing cylinders (409, 421), which form between them a lamination area in which the points (409P, 421P) of the 15 two embossing cylinders interact with each other.

52. Device as claimed in one or more of claims 39 to 51, characterized in that said second embossing unit has an embossing cylinder (309; 409; 209) with interchangeable points (309P, 409P, 209P).

53. Device as claimed in claim 45, characterized in that the first embossing unit (301, 303) for the first layer (V1) comprises a roller (301) provided 20 with points (301P) and interacting with a pressure roller (311) covered with yielding material, which interacts with an embossing cylinder (309) of the second embossing unit (309, 311).